

Pathology.—There are absolutely no characteristic changes. Cachexia, emaciation, fatty degeneration of the heart, liver, kidney and spleen, atrophy of the muscular coats of the intestine, together with hyperemia and ulceration, have been noted. The lesions in the spinal cord resemble somewhat remotely beginning tabes. Other changes noted in the nervous system are inflammatory products in the walls of the vessels of the brain and cord, degeneration in the lateral columns in the dorsal region and of the posterior columns in the cervical region. The skin presents a chronic congestion, thickening, pigmentation and atrophic changes, bringing about the roughened condition from which the disease takes its name.

Symptoms.—In general it may be said that cutaneous lesions involving the dorsal surfaces of the hands, symmetrical in position, if accompanied by stomatitis and diarrhea, warrant the diagnosis of pellagra. The case which I now present to you is in most respects fairly typical and will show better than I can describe it, the signs and symptoms of the disease.

A. R., male, white, aged 51, farm-laborer, born in the Cape de Verde Islands; has lived in the United States twenty years.

History.—The patient does not know and there is no record to show when he became a public charge. He was admitted to the wards of the Alameda County Infirmary in May, 1908, on the diagnosis of melancholia. At this time he was almost completely blind.

Examination.—November 16, 1909. The patient was emaciated but not anemic. The dorsal surfaces of the hands show evidences of repeated attacks of dermatitis. A similar condition was present on both sides and back of the neck and on the ears. The skin over these areas is dark-red in color, scaly and rough. A few white striae can be seen on the darkly pigmented surface of the neck, the whole presenting a piebald appearance.

There has been a moderate stomatitis and slight pytalism, the tongue being red on tip and sides and apparently denuded of epithelium. The diarrhea is almost constant. (Patient exhibited during the examination irritability, stupidity and tremors of the head.) The knee-jerk on left side was increased; the gait was slow and uncertain. Owing to the mental dullness no personal or family history can be obtained. Inasmuch as this is the first case to be described in California, it would be interesting to know just where the disease was received.

While this is a very clear case, it should not be forgotten that the symptom-complex may vary with the seasons. Thus, if a patient be examined in the fall or winter the stomatitis or diarrhea may have abated and the clinical picture will be incomplete. In such cases the only visible lesion will be the scaly, discolored condition on the backs of the hands. In other words, all the features of the disease are not present all the time. The chronics, however, will exhibit in addition, cord symptoms and mental aberrations. When in doubt, place such cases under observation and watch for an acute exacerbation of the characteristic signs in the following autumn or spring.

According to Babcock, the Italians regard obstinate diarrhea, mental disturbances and exaggerated knee-jerks as pathognomonic of the affection. The

English depend mainly upon the gastro-intestinal, mental and cord symptoms as a positive syndrome and will diagnose a case in the absence of skin manifestations. Pellagra without cutaneous lesions has been described by several authorities. There are no ocular signs which are characteristic. In our cases the senility present and mental dullness made it impossible to say which were due to the noxious agent and which due to the old age. The case exhibited to-night has been nearly blind for many years.

Prognosis.—In America it may be said in general that the prognosis in all cases of pellagra is grave as to final and complete recovery. It may be assumed that when the patient arrives at the asylum in a state of insanity, recovery is practically unknown. Of course, the earlier the diagnosis can be made and the treatment begun the better the prognosis. The outlook for immediate death is in proportion to the severity of the symptoms. The chronic form without mental changes is perhaps the most favorable of all. Fever and extensive erythema are danger signals. The severity of the intoxication may also be judged by the degree of mental involvement. The gravity of the prognosis is increased by complications, especially with changes in the lungs or kidneys.

Prophylaxis.—It goes, of course, without saying, that all of those factors which tend to lower bodily resistance predispose to the disease, but beyond this our views regarding prophylaxis will be influenced largely by our opinion as to the etiology of the disease. On one fact, however, all seem agreed; that is, that damaged maize plays some role in the transmission of the disease. It is, of course, foolish to assume that because of this sound corn should be entirely excluded from the dietary. It would seem more sensible to instruct the farmer how to properly harvest and store corn so that the grain may have no opportunity of undergoing fermentation. In the matter of public education, the danger of eating corn products which have undergone fermentation should be very generally impressed.

Treatment.—There is no specific treatment for the disease. Arsenic has proven a valuable agent, but probably acts by simply improving the general condition. Rest and a nutritious and abundant diet are, of course, very important. Maize should, of course, be excluded from the dietary of the patient. Hydrotherapy has had a decidedly beneficial effect in some cases. The skin should be protected against the direct rays of the bright sun in order to prevent a bad erythema. The remainder of the treatment is entirely symptomatic.

COMMENTS ON TROPICAL MEDICINE.

By CREIGHTON WELLMAN, OAKLAND.

The Societies of Tropical Medicine.

The increasing interest in tropical medicine has found expression in the establishment of several societies devoted to the advancement of our knowledge of tropical disease. The Deutsches tropenmedizinisches Gesellschaft in Germany, the Société de Médecine et d'Hygiène Tropicales and the Société de la Pathologie Exotique of Paris are all

doing valuable work. For English speaking workers, membership in one of the three following active societies would be of great advantage in keeping in touch with the latest progress: The American Society of Tropical Medicine, Secretary Dr. John M. Swan, Philadelphia Polyclinic, The International Society of Tropical Medicine, Secretary Prof. G. H. F. Nuttall, University of Cambridge, England, and The Society of Tropical Medicine and Hygiene (London), of which the American Secretary is the writer of these paragraphs.

Insects and Disease.

The admission of the importance of arthropods as disseminators of disease is in a large sense the direct outgrowth of tropical medicine and bids fair to become the great question of the day in epidemiology and pathology. The transmission by these creatures of such diseases as malaria, bubonic plague, dengue, filariasis, yellow fever, typhoid, tuberculosis, relapsing fever, sleeping sickness, tropical splenomegaly, spotted fever, etc., has been worked out in such a manner as to fill the sanitarian with suspicion toward a large part of the insect world. A detailed and systematic study of many arthropods thus becomes a necessity for the student of scientific medicine. One or two institutions have established courses in medical entomology and at least a course in medical zoology, including some consideration of insects, should find a place in every medical curriculum.

A Squirrel-Free Zone Around the Bay Cities.

We learn from the Public Health and Marine Hospital Service that the finding of plague infected ground squirrels within a mile of the city of Berkeley has led to an effort, now in progress, to destroy all these rodents within a radius of two miles of the bay cities and thus to lessen the danger of the urban rat population again becoming infected.

The Malaria Situation in California.

The number of malarial infections in this State is very large. While there are many cases constantly arriving from the Orient, there are also many originating here in California. Dr. Eleanor S. Bancroft of the University of California has kindly furnished us with records of the malarial cases treated in the students' infirmary during the past 18 months, and these show that over two-thirds of all the cases originating in the State come from places on the Sacramento River or its tributaries. All the California cases we have seen personally were from the Sacramento or San Joaquin valleys. Dr. Bancroft's report shows, however, that Humboldt county in the north and Fresno county south have also furnished cases, while one case seems to have originated in Oakland and another in Berkeley. Of the strictly tropical fevers Chile, Mexico, the Philippines, Hawaii, South China and Japan have furnished the cases the writer has seen. It need hardly be said that account has been taken only of cases recognized microscopically as well as clinically to be malaria. All three species of plasmodia have been seen. Cases contracted in the Philippines seem to be chiefly benign tertian while

those from the Sacramento Valley are usually aestivo-autumnal with frequent double infections, the other parasite being benign tertian as a rule. The only anopheline mosquitoes yet collected are *Anopheles maculipennis* and *A. punctipennis*.

Endemic Hemoptosis.

The writer has examined one case of this disease in a Chinese who had been in Formosa, and had no difficulty in demonstrating the ova of the lung fluke (*Paragonimus westermanni*) in the patient's sputum. Dr. Hayward G. Thomas of Oakland has recently called our attention to what is in all probability a second case in a white man who had lived in Japan. This infection should be looked for with the expectation of finding cases of it, as it should not be uncommon among the Orientals who come to us from the endemic centers of the disease.

ALKAPTONURIA.*

By JOHN C. SPENCER, M. D., San Francisco.

My excuse for occupying your attention with the subject of alkaptonuria, is the rarity of the condition—there having been but fifty cases recorded in medical literature—and the fact that one examining urine more or less frequently may stumble across a case and be somewhat at a loss to explain the phenomena characteristic of the condition.

The most striking peculiarity connected with this condition is that the urine, which may have been passed by an individual perfectly normal in all other respects physically, will, upon standing a longer or shorter period of time—usually at least twenty-four hours—acquire a brownish smoky tinge, remaining the while perfectly clear. This discoloration is due to the presence of *homogentisic acid* in the urine.

The original investigations on this interesting topic were made in 1857 by Boedeker, his attention having been attracted to it during a series of investigations on the various substances which have the property of reducing copper in solution. Homogentisic acid has been found invariably in every case of alkaptonuria. The brown discoloration is due to the very slow absorption of oxygen from the atmosphere. If the urine containing alkapton be actively agitated over a period of time, in a test-tube, the color-reaction takes place much more rapidly. If, however, an alkali, as caustic potash, be added, the reaction will take place more rapidly than in the absence of the alkali. Unless the urine be agitated, the reaction will be comparatively slow. If on the other hand, the alkalinized urine be violently agitated, there will be a very marked color reaction, which will be blackish in the upper layer of the fluid, forming a contact ring.

Wolkow and Baumann have made very exhaustive researches upon this phenomenon, including attempts to establish its pathology, but with imperfect success. It may be mentioned in passing, that three other substances, not due to the ingestion of drugs or chemicals, possess the property of producing a brown discoloration upon standing. They are: Brenzcatechin; glycosuric acid; uroleucic acid.

* Read before California Academy of Medicine.